

Highlights

Overview

This issue of the *Natural Gas Monthly* contains estimates through November 1999 for many natural gas data series at the national level. Estimates of natural gas prices are available through August 1999 for most series. Highlights of the data estimates contained in this issue are:

- Monthly average natural gas wellhead prices have risen in recent months, bringing the average for January through August 1999 to \$1.99 per thousand cubic feet, the same as in 1998.
- Dry natural gas production for January through November 1999 is 17,159 billion cubic feet, nearly the same as in 1998 during the same period. Net imports through November 1999 are 12 percent higher than during 1998.
- End-use consumption of natural gas for January through November 1999 is 17,597 billion cubic

feet, 0.6 percent higher than in 1998 during the same period.

- Relatively warm temperatures during November 1999 led to a low level of net withdrawals from underground storage facilities for the month, 37 billion cubic feet.

Supply

Dry natural gas production during 1999 has kept pace with that of 1998. Cumulatively for January through November 1999, dry natural gas production is estimated to be 17,159 billion cubic feet, virtually the same as in 1998 for the same period (Figure H11, Table 1). The most recent monthly estimate, for November 1999, is 1,530 billion cubic feet, or 51.0 billion cubic feet per day. This is the lowest daily rate seen in 1999, but production throughout the year is fairly steady, with the daily rate each month falling into a narrow range. The highest daily rate of production

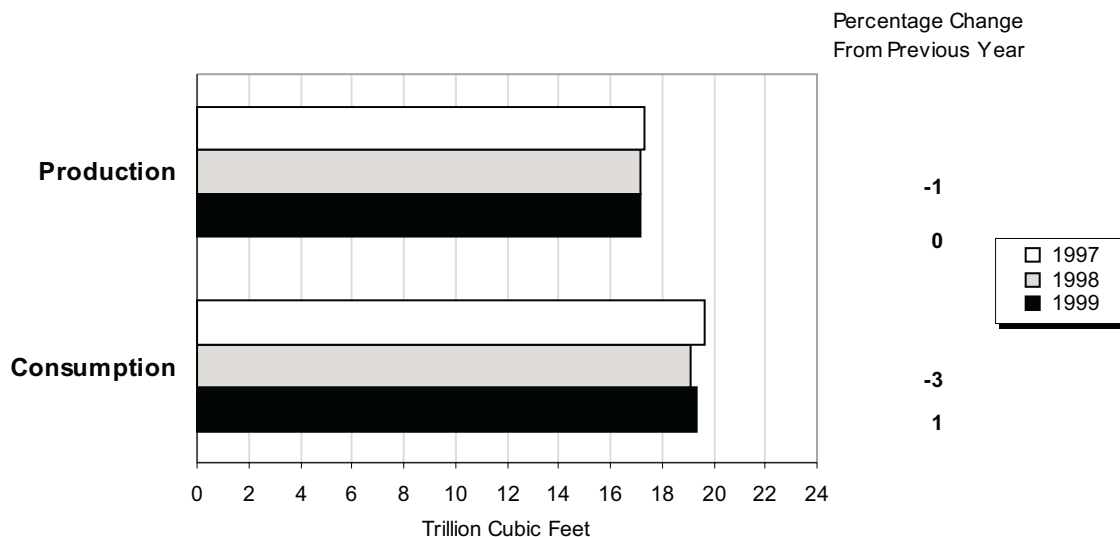
Adjustment of 1998 Monthly Data

This issue of the *Natural Gas Monthly* contains revisions of several of the 1998 monthly data series. These data series have been revised so that their totals for the 12 months of the year agree with the annual totals shown in the *Natural Gas Annual 1998*. The data series that were adjusted to annual totals are: natural gas production, wellhead prices, underground storage injections and withdrawals, consumption by State and sector, and consumer prices by State and sector.

The revisions are the result of an adjustment process that is performed each year when data received from an annual census of respondents become available. Before the process begins, all revision and corrections which had been received throughout the year are included in the monthly base figures. Then the annual adjustment process aligns the monthly estimates for sectoral consumption, sectoral prices, and underground storage injections and withdrawals, which had been developed using monthly survey information, to agree with the annual summaries of data reported on the Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," and published in the *Natural Gas Annual 1998*. Natural gas production and wellhead prices are also adjusted from previously published estimates using the best information obtained from producing States and the United States Minerals Management Service.

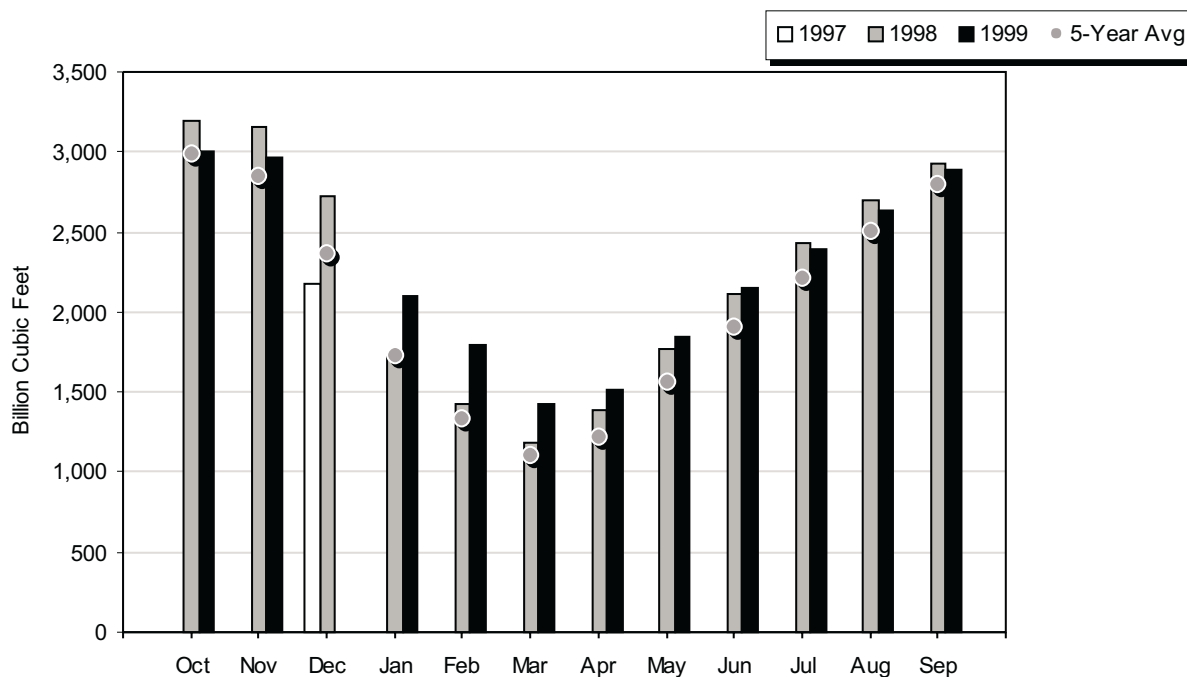
Appendices A(Explanatory Notes), B(Data Sources), and C(Statistical Considerations) of this publication provide further information about data sources, estimation procedures, annual adjustments, and sample design. These appendices may be helpful in evaluating the monthly data.

Figure HI1. Natural Gas Production and Consumption, January-November, 1997-1999



Source: Table 2.

Figure HI2. Working Gas in Underground Storage in the United States, 1997-1999



Note: The 4-year average is calculated using the latest available monthly data. For example, the December average is calculated from December storage levels for 1994 to 1998 while the January average is calculated from January levels for 1995 to 1999. Data are reported as of the end of the month, thus October data represent the beginning of the heating season.

Source: Form EIA-191, "Underground Natural Gas Storage Report," Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," and Short-Term Integrated Forecasting System.

thus far in 1999 was 52.1 billion cubic feet per day, which occurred in February.

Net imports of natural gas are running ahead of last year's rate. Cumulatively for January through November 1999, net imports are an estimated 3,063 billion cubic feet, 12 percent higher than in the same period of 1998 (Table 2). Net imports in November are an estimated 290 billion cubic feet, or 9.7 billion cubic feet per day. This was the highest daily rate of any month thus far in 1999. The lowest rate was 8.8 billion cubic feet per day in both May and June 1999.

Warmer-than-normal temperatures in November led to a low level of net withdrawals from storage during the month, only 37 billion cubic feet (Table 10). Heating degree day data for November 1999 are not yet available, but during November 1998, heating degree days were 9 percent below normal and net withdrawals were only 31 billion cubic feet.¹ During November 1997, heating degree days were 11 percent above normal and net withdrawals from storage were 189 billion cubic feet. Also during November 1999, a decline in spot prices encouraged natural gas purchases rather than withdrawals from storage, contributing to lower net withdrawals. The level of working gas at the end of November 1999 is estimated to be 2,967 billion cubic feet, 6 percent lower than at the end of November 1998, and 10 percent higher than at the end of November 1997 (Figure HI2).

Natural gas reserves data for 1998 are available in a recently released Energy Information Administration report.² Dry natural gas proved reserves were 164 trillion cubic feet at the end of 1998, a decline of 1.9 percent from 1997. This decline follows 4 years of reserve increases. Proved reserves are those quantities that can be reasonably expected to be recovered from known reservoirs under existing economic and operating conditions. Even though production was lower in 1998 than in 1997, reserves largely declined because fewer new discoveries were made in 1998 to replace the gas that was produced.

End-Use Consumption

After declining by 3 percent from 1997 to 1998, end-use consumption of natural gas in 1999 has kept pace with that of last year. Estimates for January through November 1999 show cumulative end-use consumption to be 17,597 billion cubic feet, 0.6 percent higher than for the same period in 1998 (Table 3).

Cumulative residential and commercial natural gas consumption through November 1999 is estimated to be 2 and 3 percent higher, respectively, than for the same period of 1998 (Figure HI3). Cumulative industrial consumption through the same period is nearly 1 percent below that of 1998. Cumulative consumption by electric utilities, available for January through August 1999, is only slightly below that of 1998. The industrial sector continues to consume more natural gas than any other sector, accounting for 44 percent of cumulative end-use consumption through November 1999.

Prices

On average through August, end users have paid less for natural gas in 1999 than last year, but the average wellhead price is the same as in 1998, \$1.99 per thousand cubic feet (Figure HI4 and Table 4). Monthly average wellhead prices have been fairly stable in both years relative to 1996 and 1997. During the July-through-August period in 1998, the monthly wellhead price was in the range of \$1.81 to \$2.15 per thousand cubic feet. Thus far in 1999, wellhead price estimates have been in the range of \$1.70 to \$2.46 per thousand cubic feet. The highest value is the most recent estimate for August 1999, which is 19 percent higher than the average in July 1999.

The daily average spot price for natural gas at the Henry Hub also rose toward the end of the summer, in part as the result of higher temperatures (which increased the demand for gas-fired, peak air conditioning load).³ The average spot price on July 12 was \$2.12 per million Btu. It rose to \$2.52 per million Btu by Au-

- 1 Data are gas home customer-weighted heating degree days. Data for November 1997 and 1998 are in the Energy Information Administration's *Natural Gas Monthly*, April 1999, DOE/EIA-0130(99/04) (Washington, DC, May 1999), Table 26.
- 2 Energy Information Administration, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 1998 Annual Report, Advance Summary*, DOE/EIA-0216(98)Advance Summary (Washington, DC, November 1999), pp. 1-2.
- 3 Energy Information Administration, *Natural Gas Weekly Market Update*. <http://www.eia.doe.gov> (August 16, 1999).

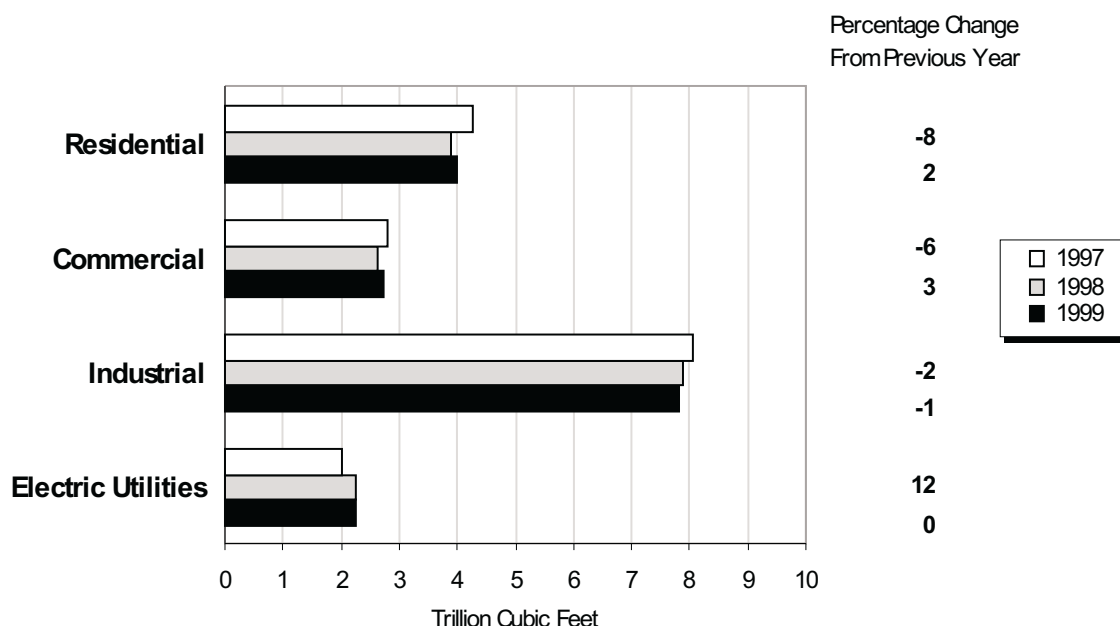
gust 2 and peaked at \$3.08 per million Btu on August 25. Other factors may have contributed to the rise in the average spot and wellhead prices in August including concern at the time that domestic production had declined or leveled off compared with last year and the high level of petroleum prices.

More recent data on the futures settlement price for the nearby month contract and the average spot price at the Henry Hub show that both price series reached \$3.00 per million Btu in late August 1999, followed by a return to lower levels during the following weeks. With the approaching heating season, both prices peaked again at around \$3.00 in late October (Figure HI5). Mild weather in November contributed to a drop in both price series with spot prices falling below the futures price by \$0.20 to \$0.30 per million Btu. The average spot price hit a low of \$1.94 per million Btu on November 24 and was \$2.17 per million Btu on December 3. The December futures contract ended trading on November 24 at \$2.12 per million Btu. On November 29, the January contract began trading as the nearby month contract, settling at \$2.35 per mil-

lion Btu. The December and January contracts had both been trading at over \$3.00 per million Btu in October.

The residential, commercial, industrial, and electric utility sectors have all paid lower prices for natural gas in 1999 than in 1998.⁴ The declines are not only for the average through August (through July for electric utilities), but for nearly every month compared with last year. Residential customers paid an estimated average of \$6.44 per thousand cubic feet for natural gas in January through August 1999, 6 percent lower than in 1998, and commercial customers paid an average \$5.19 per thousand cubic feet, 7 percent lower than in 1998. The estimated industrial price for the same period is \$2.80 per thousand cubic feet, 14 percent below that of 1998. Electric utilities paid an estimated average of \$2.37 per thousand cubic feet for January through July 1999, 5 percent lower than in 1998.

Figure HI3. Natural Gas Delivered to Consumers, January-November, 1997-1999

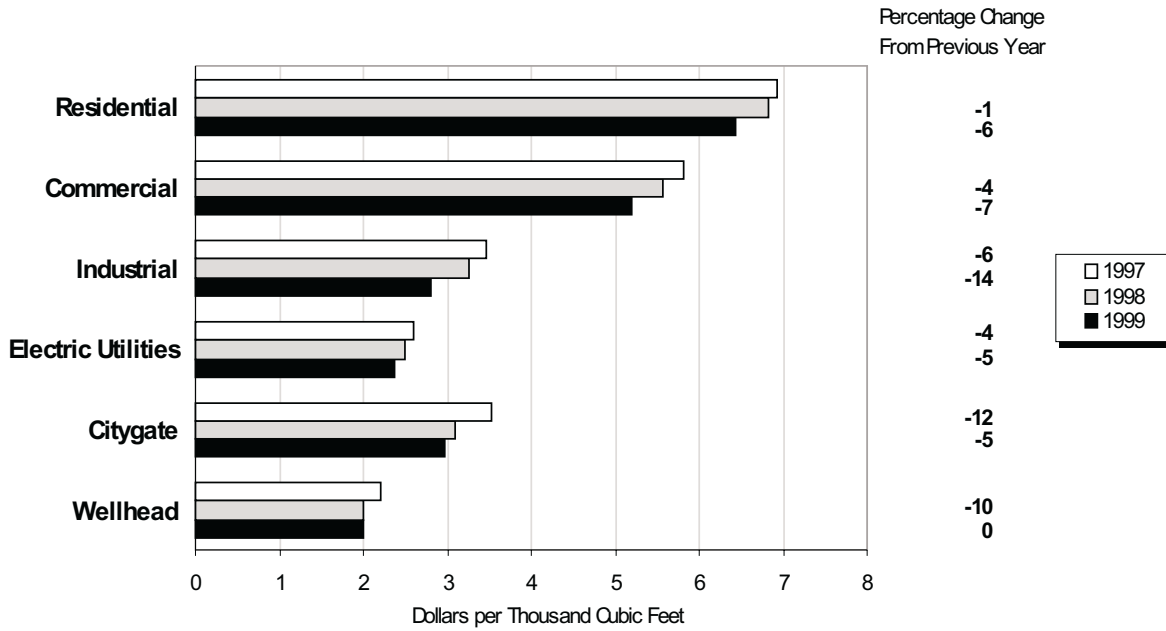


Note: Electric utilities reflect January-August deliveries.

Source: Table 3.

- 4 End-use prices in the residential, commercial, and industrial sectors are for onsystem gas sales only. While monthly onsystem sales are nearly 100 percent of residential deliveries, during 1999 they have ranged from 54 to 72 percent of commercial deliveries and only 15 to 19 percent of industrial deliveries (Table 4).

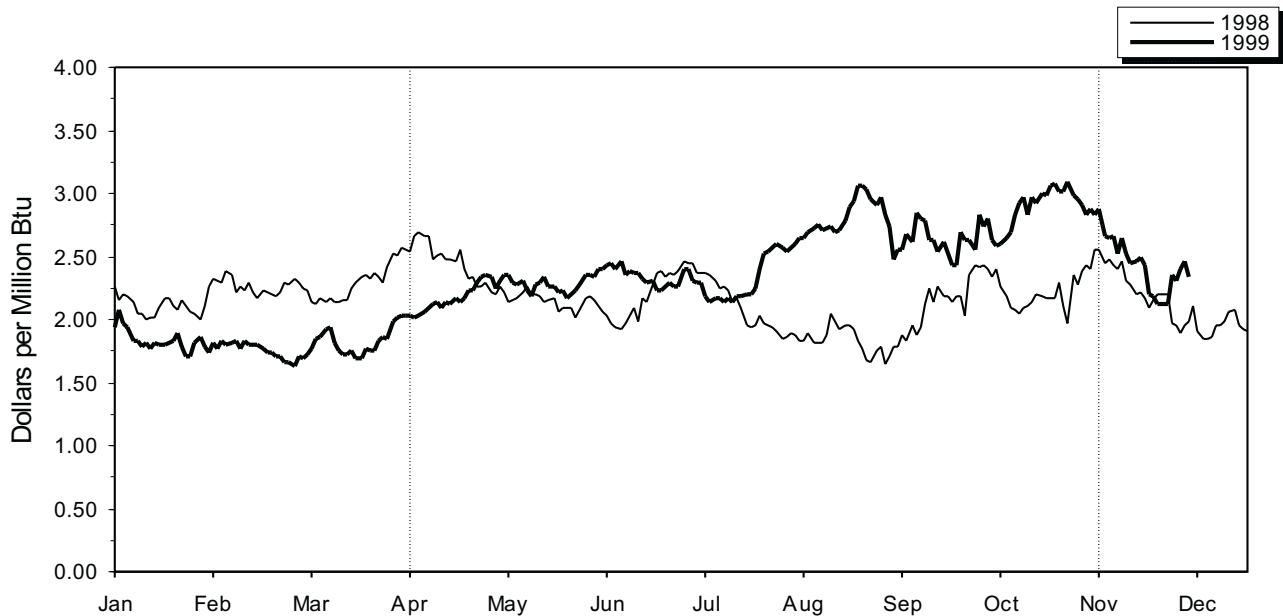
Figure HI4. Average Delivered and Wellhead Natural Gas Prices, January-August, 1997-1999



Note: Commercial and industrial average prices reflect onsystem sales only. The reporting of electric utility prices is 1 month behind the reporting of other prices.

Source: Table 4.

Figure HI5. Daily Futures Settlement Prices at the Henry Hub



Note: The future price is for the nearby month contract, that is, for the next contract to terminate trading. Contracts are traded on the New York Mercantile Exchange. April 1 is the beginning of the natural gas storage refill season. November 1 is the beginning of the heating season.

Source: Commodity Futures Trading Commission, Division of Economic Analysis.